LOGSHEET FOR FIELD CHANGES TO CONTROLLED DOCUMENTS

Change Number	Date	Document Number	Document Title	Section/Page Modified	Description Of Change(s)	Responsible Manager Approval	ESH&Q Approval	Radiological Engineering Approval	Quality Assurance Approval	Completion Of ADM 2.01 Checklist	Completion Of SES/USQD Checklist
6	8-13-98	RF/RMRS-97-010	Final Site Specific Health and Safety Plan for the Source Removal at Trench 1 IHSS 108	Table of Contents Page iv	Added section 5.1.3.9 "Asbestos" (page 37)						
6	8-13-98	RF/RMRS-97-010		Table of Contents Page vi	Added section 7.6.10 "Asbestos Control Measures" (page 96a) Added sections 7.7.15 "Confirmed Presence of Airborne Asbestos" and 7.7.16 Unplanned Breach of Drum of Dry Asbestos Containing Material (ACM) (page 106)						
6	8-13-98	RF/RMRS-97-010		4.2.1 Page 17	Inserted "suspected asbestos containing material" into waste descriptions.						
6	8-13-98	RF/RMRS-97-010		4.2.3 Page 19	Altered note to include asbestos						
6	8-13-98	RF/RMRS-97-010		5.1.3.9 Page 37	Added section on asbestos hazards						
6	8-13-98	RF/RMRS-97-010		Table 5.1 Page 41	Added asbestos physical / chemical properties						
6	8-13-98	RF/RMRS-97-010		Table 7.2 Page 80	Added asbestos action levels						
6	8-13-98	RF/RMRS-97-010		7.6.10 Page 96a	Added page 96a for new section 7.6.10 "Asbestos Control Measures"						
6	8-13-98	RF/RMRS-97-010		7.7.15 - 7.7.16 Page 106	Added actions for airborne asbestos and dry asbestos to Unanticipated Hazards or Conditions section.						
6	8-13-98	RF/RMRS-97-010		Appendix B	Added AHA covering activities involving possible exposure to asbestos.						

[1] Affixed signatures indicate that Operations Review Committee (ORC) and/or Independent Safety Reviews are NOT applicable because Scope and Fundamental Technical Specifications were NOT changed. Also, related documents affected by the change(s) were modified accordingly.

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done safely based on the initial characterization and the RMRS Directive-001 evaluation, the material or container will then be appropriately packaged and transferred to the SIP for further evaluation.

4.1.5 Excavation of Suspected Classified Items

Items suspected of being "classified" will be initially characterized per Table 4.1. They will then be isolated and the RFETS Classification Office will be contacted to determine if the item is classified. If classified, the item will be secured and the final disposition will be determined by the Classification Office.

4.2 TASK 2 - SEGREGATION AND PACKAGING OF DRUMS, SOIL, DEBRIS, UNKNOWN MATERIAL, AND SUSPECTED CLASSIFIED ITEMS

Drums, soil, debris, unidentifiable material, and suspected classified items will be segregated and packaged according to identifiable waste types and the results of initial field characterization. To the extent possible, all material will be segregated and packaged adjacent to the trench using the excavator bucket. If manual handling of material is necessary, remote handling devices will be used when feasible. Waste packaging will be conducted in accordance with Operations Order No. 00-T1-07 *Packaging of Trench T-1 Waste*.

4.2.1 Segregation and Packaging of Drums

Intact drums containing depleted uranium, still bottoms, cemented cyanide, or unknown material will be removed from the trench, initially characterized, and if they have sufficient structural integrity for hoisting, placed in an overpack drum. If the intact drums do not have sufficient structural integrity, they will be placed in an approved waste package. Hoisting of intact drums into overpack drums will be done with a hoisting apparatus designed for placing 55-gallon drums into overpacks. A Lifting Plan has been developed for the overpacking of intact drums and a hoisting and rigging checklist will be completed per HSP- 12.02, *Hoisting and Rigging*. The waste package will then be transferred to the SIP where the contents will be further characterized, sampled, and segregated by SIP personnel. Drums containing depleted uranium chips will be stabilized by inerting with mineral oil, appropriately packaged for offsite shipment, and transferred to the Waste Container Staging Area located outside of the temporary structure. Cemented cyanide, suspected asbestos containing material, and still bottom wastes will be sampled, appropriately packaged, and staged in the Waste Container Staging Area. Upon receipt of analytical results, cemented cyanide and still bottom wastes will be managed for appropriate treatment and/or disposal.

Non-intact drums and associated soil will be removed from the trench and segregated based on the initial characterization. The initial characterization will be conducted while the material is still in the excavator bucket so that depleted uranium and non-depleted uranium-containing waste streams are not placed in the same waste package.

will be visually inspected for stains or discolorations indicating potential contamination and initially characterized per Table 4.1. Debris will be segregated and packaged adjacent to the excavation based on like waste forms and the results of the initial characterization. If the initial characterization of the debris indicates the presence of VOC's or it is suspected to be chemically contaminated based on visual inspection, it will be placed in a waste container designated for mixed/low-level waste. If chemical contamination is not detected or suspected, the debris will be handled as low-level waste and packaged accordingly.

To optimize the volume of a steel waste package, size reduction of debris may be required. Size reduction will be conducted only after the initial characterization and identification of all potential hazards (See Table 4.1) as follows:

- Common debris such as wood, metal, rubber, plastic, and glass may be reduced with the excavator bucket either in the trench or as it is placed into the steel waste package.
- Empty drum carcasses which do not contain liquids or depleted uranium chips or oxide, may be reduced with the excavator bucket in the trench.
- Drums or drum fragments which previously contained liquids and do not contain depleted uranium chips or oxide, may be reduced with the excavator bucket in the trench.

Note: Drums containing or suspected of containing depleted uranium chips/oxide or Asbestos Containing Material will not be sized reduced.

4.2.4 Segregation and Packaging of Unknown Material

All materials that cannot be immediately identified will be initially characterized as shown in Table 4.1 and, if safe to do so, will be transferred to the SIP for further analysis, sampling, stabilization if necessary, and packaging.

Containers of unknown liquids or sludges will be inspected for labels, markings, or other identifying information, and repackaged to ensure container contents remain controlled during transport to the SIP.

4.2.5 Segregation and Packaging of Suspected Classified Items

Items suspected of being "classified" will be segregated and packaged depending on the results of the initial characterization. The RFETS Classification Office will be contacted to determine if the item is classified and to remove it if necessary.

5.1.3.6 Mineral Oil

Mineral oil will be used in the SIP for inerting depleted uranium that is found in intact or nominally intact drums. Mineral oil is a clear, viscous fluid with a slight odor and is not considered a hazardous chemical by OSHA. The hazard posed by exposure to this low-toxicity material is minimal and the use of protective clothing will prevent skin contact.

5.1.3.7 Oxides of Nitrogen

Diesel exhaust emissions typically have nitrogen dioxide and nitric oxide as part of the exhaust gas stream. Both gases are in low concentrations in the exhaust stream. These gases could accumulate in the temporary structure during operation of the heavy equipment used for excavation.

Nitric oxide is a colorless odorless gas generated during the combustion of fossil fuels. Although present in diesel exhaust emissions, it is oxidized to nitrogen dioxide which is about thirty times more toxic. Nitrogen dioxide is a reddish-brown irritating gas.

Both oxide form of nitrogen are strong mucous membrane and pulmonary irritants. Typical symptoms associated with nitric oxide and nitrogen dioxide exposures are bronchial irritation; burning eyes, nose, and throat; and in severe cases delayed pulmonary edema.

5.1.3.8 Sulfur Dioxide

Sulfur dioxide is a colorless gas with irritating properties similar to those of nitrogen dioxide. Diesel exhaust is a source of sulfur dioxide exposure for workers in the temporary structure.

Sulfur dioxide is a severe irritant, attacking the eyes, nose, throat, and lungs. Acute exposure may cause severe bronchial or lung damage. Chronic exposure result in watery eyes, burning in the nose and throat, and respiratory irritation. Some individuals may become acclimated to low level exposures over time.

5.1.3.9 Asbestos

Asbestos is a grey to white fibrous material used in industry as an insulating or binding material. As a particulate, asbestos presents an inhalation hazard to exposed workers.

Asbestos is linked to lung cancer and has a permissible exposure limit of 0.1 fibers per cubic centimeter for an eight hour time weighted average.

Table 5.1 (Continued)
Physical and Chemical Characteristics of Chemicals of Concern

Contaminant (Synonyms) (Abbreviations)	Action Level	OSHA PELS or ACGIH TLVs	NIOSH IDLH	Physical/Chemical Characteristics	Routes of Exposure	First Aid	Exposure Symptoms
Tetrachloroethylene (Perchloroethylene) (Tetrachloroethene) (Perk) (PCE) CAS# 127-18-4	12.5 ppm	TLV 25 ppm TWA 100ppm STEL PEL 200 ppm C (300 ppm - 5 min max peak in any 3 hrs)	Carcinogen 150 ppm	Colorless liquid with a mild chloroform-like odor. Noncombustible liquid. MW: 165.8 Sp.Gr: 1.62 BP: 250°F VP: 14mm Sol: 0.02% FRZ: -2°F Fl.P: NA UEL: NA IP: 9.32eV LEL: NA OT: 47 ppm VD: 5.7	Inhalation Ingestion Absorption Contact	Artificial respiration; Seek medical attention; Irrigate and wash area affected immediately.	Eye, nose, throat irritation; nausea; flush face and neck; vertigo, dizziness, incoordination, headache, sleepiness; skin erythema; liver damage.
Trichloroethylene (Ethylene Trichloride) (Trichloroethene) (TCE) CAS# 79-01-6	25 ppm	TLV 50 ppm TWA 100ppm STEL PEL 200 ppm C (300 ppm - 5 min max peak in any 2 hrs)	Carcinogen 1,000 ppm	Colorless liquid with a chloroform-like odor. Combustible liquid. MW: 131.4 Sp.Gr: 1.46 BP: 189°F VP: 58mm Sol: 0.0001% FRZ: -99°F Fl.P: ? UEL: 10.5% IP: 9.45eV LEL: 8% OT: 82 ppm VD: 4.53	Inhalation Ingestion Absorption Contact	Artificial respiration; Seek medical attention; Irrigate and wash area affected immediately.	Headache, vertigo; visual disturbance, fatigue, giddiness, tremor, sleepiness, vomiting, nausea; dermatitis, cardiac arrhythmias, paresthesia; eye and skin irritation; liver damage
Asbestos CAS# 1332-21-4	0.01 f/cc	PEL/TLV 0.1 f/cc	Carcinogen (N.D.)	Grey to white fibrous solid. MW: N/A Sp.Gr: varies BP: N/A VP: N/A Sol: N/A FRZ: N/A Fl.P: N/A UEL: N/A IP: N/A LEL: N./A OT: N/A VD: N/A	Inhalation Ingestion	Fresh air,Seek medical attention	Cough, Difficulty breathing

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Table 7.2
Monitoring Program Summary (cont.)

CHEMICAL				
Hazard	**Action Level[1]**	**Action Level[2]**	**Action Level[3]**	**Monitoring Frequency**
Volatile organic compounds	NA	> Background	150 ppm	Continuous in the temporary structure and as needed to characterize RBA/CRZ and PSZ.
Carbon Monoxide	< 12.5 ppm	12.5 ppm	1,200 ppm	
Hydrogen Cyanide	< 2 ppm	2 ppm	50 ppm	As needed to characterize work areas.
Nitric Oxide	< 12.5 ppm	12.5 ppm	100 ppm	As needed to characterize work areas.
Nitrogen Dioxide	< 1.5 ppm	1.5 ppm	20 ppm	Continuous in the temporary structure and as needed to characterize RBA/CRZ and PSZ
Sulfur Dioxide	< 1.0 ppm	1.0 ppm	100 ppm	
Asbestos	< 0.01 fibers/cc	1.0 fibers/cc	> 5 Fibers/cc	As needed to characterize work areas.

[1] Levels at which full face air-purifying respirators with HEPA cartridges may be worn

[2] Levels at which SCBAs or supplied air respirators must be worn.

[3] Levels at which work must be suspended - Immediately Dangerous to Life and Health (IDLH)

NOISE			
Hazard	**Action Level**	**Action(s) to be Taken**	**Monitoring Frequency**
Short term high noise levels	> 85 dBA	Don suitable hearing protection, initiate noise dosimetry, and post area	As needed to characterize new equipment/operations and confirm adequacy of hearing protection
Continuous high noise levels	> 85dBA average over 8-hour shift	Don suitable hearing protection. Employee participation in a Hearing Conservation Program required	As needed to characterize new equipment/operations and confirm adequacy of hearing protection

7.6.10 Asbestos Control Measures

Prior to excavating suspected asbestos containing material (ACM), the following work practices will be observed:

- Water used for dust suppression will be available to wet the ACM to prevent asbestos from becoming airborne.
- Ventilation will be adjusted to ensure airflow through the south and east vestibules from the Support Zone, through the Contamination Reduction Zone, and into the Exclusion Zone.
- Dry ACM will be wetted prior to packaging for transport to the SIP.
- Personnel will limit contact with the ACM to the extent practical.
- Personal and area monitoring will be used as appropriate to assess worker asbestos exposure in the tent and vestibules.
- During sampling activities at the SIP, water will be available for maintaining the ACM sufficiently moist to prevent asbestos from becoming airborne.
- Material that becomes potentially contaminated with ACM will be managed accordingly. Resulting wastes will be managed as ACM.

radiation dose rates greater than 2mrad/hr. If the alarm on any EPD activates , the following actions will be taken:

- the Field Operations Deputy Project Manager or designee and the Field Supervisor will be notified;
- the Radiological Safety Technical Supervisor will be notified;
- personnel in the temporary structure will relocate to an area of known dose rate less than 2mrad/hr;
- an RCT will respond to the alarming monitor and survey the area with an RO-20 to determine the dose rate level and locate the source of the radiation;
- if dose rates exceed the 2mrad/hr administrative limit, the source of the radiation will be controlled, if possible;
- if dose rates exceed the 5mrad/hr at 30 centimeters, the area will be posted as a "Radiation Area"
- if dose rates exceed 10mrad/hr at 30 centimeters or 300 mrad/hr beta radiation on contact, work will be suspended as stated in section 7.7.3; and
- if work is not suspended, site controls, and work practices will be reviewed and modified as necessary.

7.7.15 Confirmed Presence of Airborne Asbestos

If personal or area integrated air sample results for asbestos exceed 0.1 f/cc TWA in the Exclusion Zone, or 0.01 f/cc TWA in the Contamination Reduction Zone, the following activities will be taken:

- All activities will be immediately suspended and the Field Operations Deputy Project Manager or designee and Field Supervisor will be notified.
- RMRS Industrial Hygiene supervision will be notified.
- The temporary structure will be posted as required in 29CFR1926.1101.

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7.7.16 Unplanned Breach of Drum of Dry Asbestos Containing Material (ACM)

- RMRS Industrial Hygiene supervision will be notified.
- All nonessential personnel will exit the temporary structure by normal egress routes.
- All depleted uranium will be placed in a fire-safe configuration via inerting as follows:
  - SIP personnel will immediately inert all depleted uranium waste packages heading to or already at the SIP; and
  - the excavator operator will inert material in the trench with non-uranium containing soil;
- Industrial Hygiene will evaluate the ventilation configuration.
- The ACM area will be wetted to minimize the spread of airborne asbestos.
- Cleanup activities will be managed by competent, asbestos trained personnel.
- Material that becomes potentially contaminate with ACM will be managed accordingly. Resulting wastes will be managed as ACM.

TRENCH 1 SOURCE REMOVAL PROJECT

DRUM HANDLING FOR SUSPECTED ASBESTOS MATERIALS

Activity Hazard Analysis

8-13-98

NOTE: This Activity Hazard Analysis is to be used in conjunction with "Trench 1 Source Removal Project General Project Hazards" Activity Hazard Analysis.

Activity	Hazard	Preventative Measures
Excavation of cemented cyanide drums or other suspected Asbestos Containing Materials (ACM)	Contact with ACM	Personnel entering the tent will wear Personal Protective Equipment (PPE) stipulated on the Radiological Work Permit. The PPE required by the RWP is adequate to prevent asbestos exposure to workers.
Working in areas where contact with ACM is possible	Contact with ACM	Personnel likely to contact ACM will have received asbestos awareness training. The PPE required by the RWP is adequate to prevent asbestos exposure to workers.
Sampling of cemented cyanide drums or other suspected ACM	Contact with ACM	Sampling personnel will wear Personal Protective Equipment (PPE) stipulated on the Radiological Work Permit. A visual survey of the external layer will be performed when sampling activities for an individual drum are complete.
PPE and waste disposal	Exposure to potential ACM	All disposable PPE and other wastes that have been potentially contaminated with asbestos will be labeled, handled, and managed as ACM.
Encountering dry ACM	Inhalation of ACM Spread of ACM contamination	Any dry ACM encountered will be dampened to prevent it from becoming airborne. Additionally, prior to and during activities with a potential for encountering dry ACM, support personnel shall configure ventilation to ensure air flow from the CRZ into the EZ.

Approved:	**Signature**	**Date**
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